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Remarks

Claims 3 and 4 remain in this application. Claims 1 and 2 have been canceled without prejudice.

Claims 3-4 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject-matter which applicant regards as the invention. Specifically, claim 3 recited "*consisting in correlating*" and some phrases allegedly lacking clear antecedent basis.

Similarly, claim 4 recited "*the configuration of the respective regions*", which allegedly lacked clear antecedent basis.

In response to the Examiner's objection, claim 3 has been amended so as to replace the original phrase "*consisting in correlating*" with "*consisting in the steps of: - correlating and - moving ...*".

Moreover, all the phrase allegedly lacking clear antecedent basis have been amended as follows:

- "*the corresponding feed*" now reads as "*the respective feed*", which has clear antecedent basis;
- "*the corresponding threads*" now reads as "*corresponding threads*", i.e. threads corresponding to the respective feed;
- "*the transit of all the needles*" now reads as "*transit of all the needles*";
- "*the contiguous set of needles*" now reads as "*a contiguous set of needles*";
- "*the configuration of the respective regions*" now reads as "*a configuration of respective regions*".

In view of the foregoing amendments it is believed that the rejection under 35 U.S.C. 112, second paragraph, has been overcome.

Claims 3-4 were rejected under 35 U.S.C. 102(b) as being anticipated by the British patent document GB1559675.

Applicants respectfully disagree with the Examiner's opinion. In fact, the British patent document GB1559675 is explicitly directed to circular knitting machines for knitting socks (page 1, lines 20-24; page 7 lines 10, 19-22), i.e. small-diameter circular knitting machines.

In order to emphasize this first important difference, amended claim 3 specifies

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that the claimed method is for producing intarsia designs with a medium- or large-diameter circular knitting machine, as stated in the specification, page 6, lines 12-14.

It is known that medium- and large- diameter circular knitting machines are used not to knit socks, but to the contrary they are used for producing items of clothing having a much larger diameter than the diameter of a sock, e.g. body suits, sleeveless tops, bras, undershirts, underpants or the like (see also the specification as filed, page 3, lines 1-2).

The medium/large diameter of the needle cylinder corresponds to an overall cylinder's size which is much greater than the cylinder's size in a small-diameter circular knitting machine. Such greater size results in a much heavier cylinder, whose overall mass negatively affects knitting operations which are, instead, conventionally used in small-diameter circular knitting machines.

Among these knitting operations which cannot be adapted in an obvious way from a small- to a medium-/large- diameter machine is the reciprocation of the cylinder. In fact, during the reciprocation motion, the overall mass of the cylinder in a medium/large diameter machine negatively affects the average speed of the needle cylinder, which is lower than the average speed of small-diameter cylinders because of its longer acceleration/deceleration times.

British patent document GB1559675 discloses a knitting method in which the small-diameter needle cylinder, in order to produce intarsia designs, must always perform a 360° swing plus 45° overswings in both directions (page 1, lines 20-35). Therefore, the small-diameter cylinder of GB1559675 always perform an overall swing of 450° before changing the rotation direction and such swing does not vary with the intarsia design's size.

In other words, in document GB1559675 the last needle of a set of needles which are excluded from actuation at a feeder, by means of a picker is actuated at such feeder so as to take yarn also from such feeder, thus joining design regions having different colors. Such actuation is performed for the various sets of needles of the cylinder which have to knit the various design regions.

In order to bring such needles (which are herein called "margin needles") in the correct position so that they can correctly work during the opposite rotation of the

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needle cylinder, it is necessary that the cylinder performs the above extra-swings at each end of the reciprocation.

Therefore, the overall cylinder's swing of document GB1559675 is absolutely not suitable for medium- and large-diameter circular knitting machines, because a constant 450° swing in each rotation direction would significantly slow down the knitting times.

As a consequence thereof, one of average skill in the art would not consider the document GB1559675 in order to produce intarsia designs in medium- and large-diameter circular knitting machines, because it would cause very long manufacturing times.

In order to solve the above problem, i.e. in order to greatly reduce the swing necessary for producing an intarsia design, the applicants invention provides a course-dependent correlation between a set of needles and a feed/drop and imposes to the cylinder an extent of oscillation which is only sufficient to produce the transit of all the actuated needles of each set of needles at the feed correlated (for the current course) to that set of needles.

It is to be noted that the correlation between one set of needles and one feed/drop is defined for each course of the fabric and, accordingly, can be changed from course to course. In other words, in the applicants invention there is not a correlation between a yarn (i.e. color) and a feed as in document GB1559675, but between a set of needles and a feed at which, as is known, various colors can be fed.

Since the correlation between the sets of needles and the corresponding feeds/drops can be changed from course to course and the extent of oscillation is not necessarily a complete 360° rotation (being only sufficient to produce the transit of all the actuated needles of each set of needles at their correlated feed), it is possible to significantly reduce the swing of the needle cylinder and, accordingly, reduce the knitting times.

In particular, by suitably correlating the various sets of needles to the various feeds, it is possible to knit a course by rotating the needle cylinder according to an extent only slightly greater than the magnitude of the cylinder's sector comprising the most populated set of needles to be actuated at a certain feed (the term "slightly" is due

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because, obviously, the last needle of the set must take the yarn, so as to knit both at the feed or drop that is correlated with the set of needles to which it belongs and at the feed that is correlated with the contiguous set of needles). This is because, while the needle cylinder performs a rotation sufficient to make such set of needles transit in front of the respective feed, the other sets transit in front of and are actuated at their respective feeds.

In view of the foregoing, applicants believes that document GB1559675 would not be considered by the person skilled in the art for producing intarsia designs in medium- and large-diameter circular knitting machines and, in any case, the claimed invention would be very different from the method taught by document GB1559675. Therefore, applicants would respectfully solicit allowance of the pending claims.

Respectfully submitted,


Daniel O'Byrne (Reg. No. 36,625)
Agent for the Applicants

Date: December 21, 2006
Address: Via Meravigli 16, 20123 MILAN-ITALY
Telephone: (from USA) (011)(39)(02)8590-7777
Telefax: (from USA)(011)(39)(02)863-860